I. AMENDMENT

Please amend the claims as follows:

1. (Original) A flow control valve for a hydraulic motor comprising:

a hydraulic motor having an element that rotates at a speed in response to a power fluid;

a valve having a valve housing and a valve piston, the valve coupled to the hydraulic motor, the valve housing having a valve housing port therethrough, the valve piston having a valve piston port, the valve housing and valve piston moveable relative to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and

a pump assembly coupled to the valve and adapted to move either the valve housing or the valve piston in response to the rotation of the element such that the bypass flow of the working fluid through the housing and piston ports is dependent on the speed of rotation of the element.

2. (Original) The flow control valve of claim 1 in which the bypass flow is reduced when the rotating element is below a predetermined speed of rotation, and the bypass flow of the working fluid is increased when the speed of rotation of the element is above the predetermined speed of rotation.

3. (Original) The flow control valve of claim 2 wherein the bypass flow is proportional to the speed of rotation of the element up to a maximum bypass flow.

4. (Original) The flow control valve of claim 3 wherein the bypass flow is proportional to a degree of alignment between the housing and piston ports.

5. (Original) The flow control valve of claim 4 in which the hydraulic motor is a mud motor and the element is a rotor.

6. (Original) The flow control valve of claim 4 in which the hydraulic motor is a turbine and the element is a turbine shaft.

7. (Original) The flow control valve of claim 6 in which the pump assembly further comprises:

a pump shaft; and

a pump rotatable relative to the pump shaft, the pump adapted to pump control fluid at a rate proportional to the speed of rotation of the turbine shaft through a control fluid system to cause relative movement between the valve piston and valve housing.

8. (Original) The flow control valve of claim 7 further comprising a magnetic coupling having a male and female portion, the male portion being attached to the pump shaft, the female portion circumscribing the male portion and attached to an upper bearing housing within an outer valve housing, the male and female portions of the magnetic coupling adapted to provide relative rotational motion therebetween.

9. (Original) The flow control valve of claim 7 wherein the control fluid comprises hydraulic fluid and the control fluid system is a hydraulic fluid system.

10. (Original) The flow control valve of claim 9 in which the hydraulic fluid system further comprises:

a pump bulkhead having a channel therethrough;

a pump crossover having an inner passage and an outer passage;

a flow restrictor inside the outer passage of the pump crossover; and

a pump housing,

wherein the pump pumps hydraulic fluid through the channel in the pump bulkhead, through the inner passage of the pump crossover, through the flow resistor, and through the pump housing to a suction side of the pump,

the flow of hydraulic fluid through the hydraulic fluid system exerting a downward force on the piston proportionate to the rate of rotation of the turbine shaft.

11. (Original) The flow control valve of claim 10 further comprising biasing means functionally associated with the valve piston adapted to resist the downward force of the hydraulic system.

12. (Original) The flow control valve of claim 11 wherein the biasing means comprises a spring.

13. (Original) The flow control valve of claim 12 in which the pump assembly further comprises an accumulator defined by an accumulator piston within an accumulator shaft to contain a reservoir of hydraulic fluid, the accumulator piston contacting working fluid on an outside surface of the accumulator piston and the hydraulic fluid on an inside surface of the accumulator piston.

14. (Original) The flow control valve of claim 13 in which the accumulator piston further comprises a pressure relief valve to selectively provide fluid communication of control fluid out of the accumulator to protect the accumulator from overheating.

15. (Cancelled)

16. (Original) The flow control valve of claim 1 wherein the relative movement of the valve housing and the valve piston is axial.

17. (Original) A bottom hole assembly for performing an operation downhole, comprising:

a hydraulic motor that has an element that rotates in response to a flow of a power fluid defining the speed of the hydraulic motor;

a downhole tool; and

a control valve for controlling the speed of the hydraulic motor by directing working fluid through the bottom hole assembly, the control valve coupled to the motor and having a valve housing having a housing port,

a valve piston having a valve piston port, the valve piston and valve housing being moveably connectable to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and

a pump assembly coupled to the valve and adapted the selectively increase the bypass flow when the motor speed is above a predetermined speed and to selectively decrease the bypass flow when the motor speed is below the predetermined speed.

18. (Original) The bottom hole assembly of claim 17 in which the bypass flow is proportional to the motor speed.

19. (Original) The bottom hole assembly of claim 17 in which the hydraulic motor is a mud motor and the element is a rotor.

20. (Original) The bottom hole assembly of claim 19 in which the downhole tool is a drill bit.

21. (Original) The bottom hole assembly of claim 17 in which the hydraulic motor is a turbine and the element is a turbine shaft.

22. (Original) The bottom hole assembly of claim 21 in which the downhole tool is a de-scaling unit.

23. (Original) The bottom hole assembly of claim 22 in which the pump assembly further comprises:

a pump shaft; and

a pump rotatable relative to the pump shaft, the pump adapted to pump a control fluid at a rate proportional to the speed of rotation of the turbine shaft, through a control fluid system to cause relative movement between the valve piston and valve housing.

24. (Original) The bottom hole assembly of claim 23 further comprising a magnetic coupling having a male and female portion, the male portion being attached to the pump shaft, the female portion circumscribing the male portion and attached to an upper bearing housing within an outer valve housing, the male and female portions of the magnetic coupling adapted to provide relative rotational motion therebetween.

25. (Original) The bottom hole assembly of claim 24 further comprising a pair of thrust bearings, one above the flow control valve and one below the flow control valve.

26. (Original) A method of controlling the rotation of a downhole tool, comprising:

attaching a downhole tool to a hydraulic motor, the motor having a rotating element that rotates in response to a flow of power fluid;

providing a flow control valve having a valve housing and a valve piston, the valve coupled to the hydraulic motor, the valve housing having a valve housing port therethrough, the valve piston having a valve piston port, the valve housing and valve piston moveable relative to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and

a pump assembly coupled to the valve and adapted to move either the valve housing or the valve piston in response to the speed of rotation of the rotating element such that the bypass flow of the working fluid through the housing and piston ports is dependent on the speed of rotation of the element; and

injecting a flow of working fluid above the valve, the valve dividing the flow of working fluid flow between the flow of power fluid and the bypass flow proportional to the speed of rotation of the element.

27. (Original) The method of claim 26, further comprising providing a turbine having a turbine shaft the rotates at a speed in response to a flow of power fluid, and attaching the downhole tool to the turbine.

28. (Original) A control valve for a hydraulic motor rotating at a speed in response to a power fluid, comprising:

a valve having a valve housing and a valve piston, the valve coupled to the hydraulic motor, the valve housing having a valve housing port therethrough, the valve piston having a valve piston port, the valve housing and valve piston moveable relative to one another and adapted to establish a bypass flow when the valve housing and valve piston ports are at least partially aligned; and

an energizer coupled to the valve and adapted to move either the valve housing or the valve piston in response to the motor speed such that the bypass flow of the working fluid through the housing and piston ports is dependent on the motor speed.

29. (Original) The valve of claim 28 in which the bypass flow is reduced when the hydraulic motor speed is below a predetermined speed, and the bypass flow of the working fluid is increased when the motor speed is above the predetermined speed.

30. (Original) The control valve of claim 29 wherein the bypass flow is proportional to the motor speed up to a maximum bypass flow.

31. (Original) The control valve of claim 30 wherein the energizer is a pump assembly, the hydraulic motor is a turbine, and the rotating element is a turbine shaft.

32. (Original) The control valve of claim 31 in which the pump assembly further comprises:

a pump shaft; and

a pump rotatable relative to the pump shaft, the pump adapted to pump control fluid at a rate proportional to the speed of rotation of the turbine shaft, through a control fluid system to cause relative movement between the valve piston and valve housing.